The Hip’s Influence on Lower Quarter Pain

Paul Reuteman DPT, OCS, L-ATC
Aurora BayCare 4th Annual Current Concepts in Sports Medicine
Sept. 15, 2011

What are we going to talk about....

“Regional Interdependence: The concept that seemingly unrelated impairments in a remote anatomical region may contribute to, or be associated with, the patient’s primary complaint.”
(Wainner R. JOSPT. 2007)

The “2 joint rule”
Rather than locating the “source of pain”, identify the “impairments”

Myopic View...

• We tend to take on a specific attitude to evolving literature that contradicts current practice
• My goal is to make you realize the hip’s influence on the entire lower quarter

Influence on hip MUSCLE FUNCTION on Lower Quarter...

What about the influence of restricted HIP MOTION and MOBILITY on Lower Quarter Pain?

“Hey I got a patient that I would like to talk to you about...”

• 17 year old with 5 month history of anterior knee pain, catcher in baseball, no known MOI
• “Vague” medial knee pain, all knee “special tests” are negative, only provocative measures in clinic are with deep squat, no strength deficits
• Consistent pain with running and squatting
• 5 visits of “traditional” PT with no change in outcome. Focus was on CKC strengthening and stretching
• “What do you think could be causing the pain...”
• REPLY: Not sure... but did you check the hip?
• Assessment:
  – Asymmetry of hip internal rotation (20° difference)
  – MMT of ISOLATED Glut med: weakness associated with very mild knee pain
  – Limited ROM/pain FABER and scouring
  – Pain with squat test
• Intervention:
  – Lumbopelvic manipulation, hip, and long axis distraction
  – Glut med strengthening in standing
• 2 visits...asymptomatic and full return to activity. NO return of symptoms at 6 month F/U

“IMPAIRMENT-BASED TREATMENT APPROACH”

From a rehabilitation perspective:
Shift focus away from identifying the PATHOANATOMICAL STRUCTURE causing the pain to identifying the IMPAIRMENTS that may lead to painful movement

The hip is at the center of it all...It influences motion at the lumbopelvic region and the knee

Publications Regarding Connection Between Primary LBP and Hip mobility

• Cibulka MT. JOSPT. 1999
  – Case report on individual with back pain
  – Addressed hip mobility
• Boyle and Derniske. Physio Theory and Practice. 2009
  – Case report on individual with LBP and sciatica
  – Addressed hip tightness and strength deficits
• Whitman JM, et al. PM&R. 2003
  – Treat hip with other manual therapy techniques for patients with stenosis
• Whitman JM, et al. Spine. 2003
  – Compared exercise with exercise and manual therapy to lumbar and hip
  – Improved outcomes in manual therapy group

Is this a new concept?
• “Hip – Spine Syndrome” (Oflerski CM. Spine. 1983)
• Relationship between hip ROM and SI joint pain and knee pain (Cibulka MT. 1988, 1998 and 2005)
• Hip ROM deficits (esp. IR) found with back pain (Ellison JB. PT. 1990)
• Abundance of literature attempting to link proximal hip recruitment/strength/endurance to anterior knee pain and low back pain

Other Examples...

• CPR for manipulation of the lumbar spine (Flynn T. 2002, Childs J. 2004)
  – Hip rotation ROM was one of five factors to identify a patient who would benefit from lumbar manipulation
• CPR for stabilization of the lumbar spine (Hicks G. 2005)
  – Hip SLR ROM was one of four factors to identify a patient who would benefit from lumbar stabilization
Publications Regarding Connection Between Primary Hip pain and Lumbo-pelvic region and knee

- Cibulka MT. JOSPT. 1993
  - RCT of runners. One group received manual therapy to hip and other group received lumbopelvic manipulation ("The Cibulka Smash")
  - Manipulation group presented with greater decrease in pain and greater increase in motion during FABER
- Konczak CR. J Manip and Physiologic Ther. 2005
  - Case study of distance runner with snapping hip syndrome
  - Received lumbopelvic manipulation with STM
  - 24 hour later, immediate relief of symptoms

Publications Regarding Connection Between Primary Knee pain and Hip and Lumbo-pelvic region

- Knee OA
  - Deyle. PT. 2005
  - Cliborne JOSPT. 2004
  - Currier JOSPT. 2007
- Anterior knee pain
  - Lowry JOSPT 2008
  - Iverson. PT 2008
  - Mascal. JOSPT. 2003
  - Cibulka and Threlked-Walkings. JOSPT. 2005
  - Vaughn. JOSPT. 2008

Deyle studies
IN GENERAL...

Supervised exercise with manual therapy intervention addressing impairments of lumbo-pelvic joint, hip, knee and ankle are more effective than no treatment AND limited treatment for KNEE OA

What hip “impairments” should be assessed for primary back/hip/knee pain?

(Cliborne AV. JOSPT. 2004)

Impairments:
Assess ROM/asymmetry/pain
- Passive hip flexion and internal rotation
- FABER and FADIR test
- Functional squat test: Pain and motion

What “manual therapy” should be considered for primary back/hip/knee pain?

Manual Therapy of Hip:
- Long axis traction/manip:
- AP mob: (posterior hip)
- PA mobs: (anterior hip)
- Variations to these (In lab)

Always following up with...
Establishment of a CPR for patients with knee OA?

Development of a CPR to ID Patients with knee pain and clinical evidence of knee OA who demonstrate a favorable short term response to hip mobilization. (Currier LL. PT. 2007)

- 60 subjects with knee OA
- Underwent a standardized examination of hip and knee
- All received 4 hip joint mobilizations for one visit
- Assessed perceived pain and Global rating of change

Currier LL. PT. 2007

5 variables identified:
1. Ipsilateral anterior thigh pain
2. Ipsilateral pain or parasthesia in hip/groin
3. Ipsilateral knee flexion < 122°
4. Ipsilateral hip IR < 17°
5. Pain with ipsilateral hip distraction

Combination of any 2 items:
+ LR = 12.9, post-test probability of success = 97%

Establishment of a CPR for patients with Anterior Knee Pain?

Lumbopelvic Manipulation for the Treatment of patients with PFPS: Development of a CPR. (Iverson CA. JOSPT. 2008)

- 50 subjects with knee PFP Syndrome
- Underwent a standardized examination of hip and knee
- Assessed pain during squatting, step up and step downs (Asterisk signs)
- Performed manipulation of lumbopelvic region
- Assessed perceived pain and Global rating of change on the asterisk signs
- Reduction in pain or perceived improvement deemed a success

Iverson CA. JOSPT. 2008

5 Variables identified:
1. Side to side Difference in hip IR > 14° (most powerful predictor)
2. Ankle DF with knee flexed >16°
3. Navicular drop >3°
4. No stiffness with sitting > 20 minutes
5. Squatting is most painful activity

Combination of 3 items:
+ LR = 18.4, post-test probability of success = 94%

I know, I know...

- Issues with studies establishing a CPR
  - Single arm design
  - No control
  - No long term follow up ...
  - get a sense of immediate response of symptoms to intervention
  - Requires validation studies
- But...

Aurora BayCare Symposium
Reuteman, 4
What about manual therapy to hip in the presence of primary hip pain?

- Hoeksma HL. 2004
  - RCT of patients with hip OA
  - Favorable short and long term outcomes with inclusion of manual therapy of hip
- MacDonald CW. 2006
  - Case series of patients with OA
  - Favorable outcomes
- Cook KM. 2009
  - Case report of 28 y/o with early degenerative changes of hip
- Reuteman and Haberl. Cases series???

In summary...

- The hip plays an integral role in the function of the back and knee
- For pts with primary knee, hip and LBP...take a regional approach and assess impairments of hip (motion/weakness)
- Address these impairments during intervention (hip mobs/manips and proximal strength)

Keep an open mind